



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001**

August 19, 2014

Mr. Raymond A. Lieb
Vice President
Davis-Besse Nuclear Power Station
FirstEnergy Nuclear Operating Company
5501 North State Route 2
Oak Harbor, OH 43449

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
DAVIS-BESSE NUCLEAR POWER STATION LICENSE RENEWAL
APPLICATION (TAC NO. ME4640)

Dear Mr. Lieb:

By letter dated August 27, 2010, FirstEnergy Nuclear Operating Company submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54 for renewal of Operating License NPF-3 for the Davis-Besse Nuclear Power Station. The staff of the U.S. Nuclear Regulatory Commission (NRC or the staff) is reviewing this application in accordance with the guidance in NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants." During its review, the staff has identified areas where additional information is needed to complete the review. The staff's requests for additional information are included in the enclosure. Further requests for additional information may be issued in the future.

Items in the enclosure were discussed with Cliff Custer, of your staff, and a mutually agreeable date for the response is 30 days from the date of this letter. If you have any questions, please contact me by telephone at 301-415-4084 or by e-mail at Emmanuel.Sayoc@nrc.gov

Sincerely,

/RA/

Emmanuel Sayoc, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosure:
As stated

cc w/encl: Listserv

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FirstEnergy Nuclear Operating Company
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DAVIS-BESSE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
SUPPLEMENTAL REQUESTS FOR ADDITIONAL INFORMATION

RAI 2.5.6.2a

Background:

In the license renewal application (LRA) Amendment No. 50 – Annual Update, the applicant provided a revision to LRA Section 2.5.6.2, “Station blackout Recovery Path Evaluation Boundaries” and Figure 2.5-1, “Davis-Besse Station Blackout Recovery Path,” to add a new breaker 81-B-65 to the switchyard components that are in-scope of license renewal. The Davis-Besse Updated Safety Analysis Report (USAR) Section 8.3.1.1.4.2, “Alternate AC Source - Station Blackout Diesel Generator,” describes a Station Blackout Diesel Generator (SBODG), which is capable of supplying power to either of the Station’s essential 4.16kV buses (D1 or C1) through nonessential Bus D2 for coping with a Station Blackout (SBO) event. USAR Figure 8.3-1, which depicts Davis-Besse alternating current electrical system one-line diagram, shows the SBODG connected to Bus D2 through Bus D3. *Code of Federal Regulations* Part 10 (10 CFR) 54.4(a)(3) requires that all systems, structures, and components (SSCs) relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with NRC regulations for SBO (10 CFR 50.63) be included within the scope of license renewal. LRA Table 2.2-1, “License Renewal Scoping Results for Mechanical Systems,” shows the SBODG system in-scope of license renewal.

Issue:

SBODG is not mentioned in LRA Section 2.5, “Scoping and Screening Results: Electrical and Instrumentation and Controls Systems,” and Section 3.6, “Aging Management of Electrical and Instrumentation and Control Systems.” In addition, Figure 2.5-1 does not show the SBODG.

Request:

Provide updated LRA Section 2.5 including Figure 2.5-1 and Section 3.6 that include the scoping and screening and aging management review of SBODG system electrical components in accordance with 10 CFR 54.4(a)(3).

RAI 4.3.2.2.6.1-1 (LRA Update follow-up)

Background:

On June 23, 2014, the applicant submitted an LRA update to comply with the LRA update requirements in 10 CFR 54.21(b). As part of this submittal, the applicant identified that the original once-through steam generators (OTSGs) in the Davis-Besse Nuclear Plant were replaced in the Cycle 18 (Spring 2014) refueling outage. Based on this plant modification, the applicant amended LRA Section 4.3.2.2.6 to propose changes to the metal fatigue time-limited aging analyses (TLAA) bases for the OTSGs at the facility. The applicant also amended LRA AMR Table 3.1.2-4 to include updated AMR items that credit a TLAA as the basis for managing fatigue-induced cracking (i.e., “cracking – fatigue”) in the following replacement OTSG components:

- pressure boundary bolts
- primary manways and inspection opening covers
- primary side tubes
- primary side tube plugs
- primary side upper and lower heads
- primary side inlet and outlet nozzles
- primary side upper and lower tubesheets
- primary side tube-to-tubesheet welds
- secondary side auxiliary feedwater headers, risers, and nozzles
- secondary side shrouds and shroud support rings and lugs
- secondary side manways and handhole covers
- secondary side main feedwater headers, risers, support plates, and gussets
- secondary side main feedwater nozzles, main feedwater nozzle thermal sleeves, and auxiliary feedwater nozzle thermal sleeves
- secondary side steam outlet nozzles, vent nozzles, drain nozzles, and level sensing nozzles
- secondary side shells
- secondary side tube support plates
- secondary side tube support plate spacers
- secondary side tube support rods (tie rods)
- base support stools and base support platforms

Issue:

The amended version of LRA Section 4.3.2.2.6.1 in the letter of June 23, 2014, states that cumulative usage factors (CUFs) were calculated for the limiting primary and secondary side steam generator locations. The amended TLAA basis for replacement OTSG components in LRA Section 4.3.2.2.6.1 does not: (1) reflect that these replacement OTSG components are the limiting steam generator locations that were analyzed in accordance with an updated ASME Code Section III fatigue analysis (i.e., CUF analysis) for the current licensing basis, or (b) identify the basis for accepting the fatigue analysis for each of these components in accordance with 10 CFR 54.21(c)(1)(i), (ii), or (iii).

Request:

1. Identify all replacement OTSG components that were required to be analyzed in accordance with an ASME Code Section metal fatigue analysis (i.e., CUF analysis).
2. For each replacement OTSG component that has been analyzed in accordance with an updated CUF analysis, provide a comparison of the CUF analysis for the component to the six criteria for defining a TLAA in 10 CFR 54.3(a) and justify why the updated CUF analysis for the component would not need to be identified as a TLAA in accordance with the requirement in 10 CFR 54.21(c)(1).
3. For each replacement OTSG component that was analyzed in accordance with a metal fatigue analysis conforming to the definition of a TLAA in 10 CFR 54.3(a), provide

justification for accepting the metal fatigue analysis in accordance with the requirements in 10 CFR 54.21(c)(1)(i), (ii), or (iii).

RAI 4.3.2.2.6.4-1 (LRA Update follow-up)

Background:

In the LRA update letter dated June 23, 2014, the applicant identified that the OTSGs in the plant design were replaced in the Spring 2014 refueling outage and that the previous flow-induced vibration analysis for original OTSG tube and tube stabilizers did not apply to these replacement OTSGs. Therefore, in the letter of June 23, 2013, the applicant proposed to delete LRA Section 4.3.2.2.6.4 from the scope of the LRA.

Issue:

It is not evident to the staff why the tubes and or other components in the replacement OTSG would not have been required to be analyzed with a flow-induced vibration analysis, similar to the manner that the tubes and tube stabilizers in the original OTSGs were analyzed for flow-induced vibrations, or why such a flow-induced vibration analysis would not need to be identified as a TLAA for the replacement OTSGs or specific subcomponents in the replacement OTSGs.

Request:

Clarify whether the design code or codes for the replacement OTSGs, or specific components in the replacement OTSGs, required performance of a flow-induced vibration analysis for the components. If the design code for the replacement OTSGs, or specific components in the replacement OTSGs, did require performance of a flow-induced vibration analysis, justify why the applicable flow-induced vibration analysis would not need to be identified as a TLAA, when compared to the six criteria in 10 CFR 54.3(a) for defining a specific analysis as a TLAA.